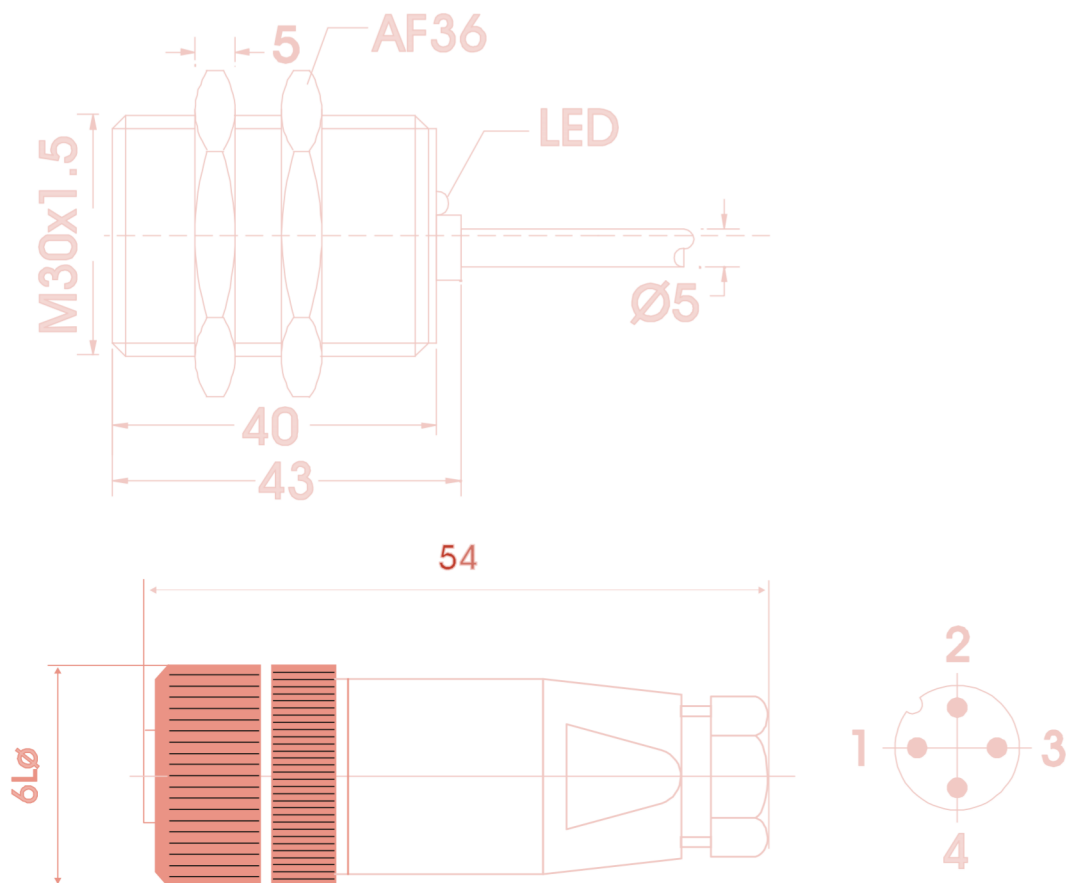


PRECISION SWITCHES

CONTENTS

Inductive Proximity Switches

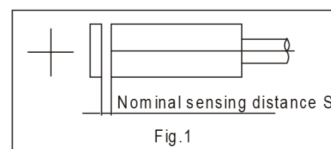


INDUCTIVE PROXIMITY SWITCHES

The **TEKNIC EUCHNER** inductive proximity switches are solid state switching devices that require no physical contact to actuate them. Used for control and positioning signals they can be connected directly into conventional or electronic control systems. The use for such switching devices has increased in recent times as machines in general have become more and more automated.

BASIC DEFINITIONS:

1. Sensing distance: The sensing distance is the maximum distance between the target and sensing face to be sure of obtaining a switching signal. This distance is measured using a square mild steel target 1 mm in thickness. The sides of the square should be equal to the diameter of the sensing face of the Proximity switch (see Fig.1)

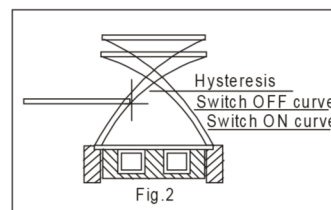


2.The Reduction Factor: To be taken into account when the target is of material other than steel or having varied thickness and dimensions.

Material	Factor
Steel (St.37)	1.0
Brass	0.35... 0.5
Copper	0.25...0.45
Aluminium	0.35...0.5
Stainless Steel	0.6... 1.0

3. Repeat Accuracy: It is the reproduction accuracy between two successive operations under the same ambient conditions.

4. Switch Hysteresis: The difference between switch ON and switch OFF points when the target approaches and moves away from the sensing face resp. Is called Switch Hysteresis (see..Fig.2)



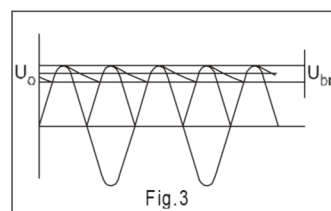
5. The Temperature Drift: The temperature drift is the change in switch point in micrometers/K due to variations in ambient temperature conditions when all other conditions remain constant.

ELECTRICAL CHARACTERISTICS:

The Voltage

The Operating Voltage V is the voltage that can be used to operate the inductive proximity switch.

The Voltage Drop U_d is the voltage measured between the energized output and switched potential.



The Ripple Voltage is the AC voltage U_{br} (peak to peak) superimposed on the mean DC voltage U_o expressed as a percentage. The provision of a smooth DC supply within 10% (to DIN 41755) maximum ripple is absolutely essential for the effective operation of DC switches (see.Fig.3)

The Current

The Load Current I_a is the maximum current at which the inductive proximity switch can be continually operated.

The No-Load Current is the current consumed by the switch at the maximum operating voltage without there being any external load current.

The Residual Current – It is the current, which flows through the load even when the switch is in it's blocked state.

The Switch Frequency:

The switch frequency is the maximum number of switching functions per second. This frequency is measured as per EN 50010 in which the sensing face of the proximity is kept at a distance of $S/2$ from the target, S being the sensing distance.

The methods of protection:

The TEKNIC EUCHNER inductive proximity switches have an **Environmental Protection to IP 67** to DIN 40050.

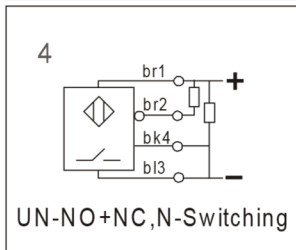
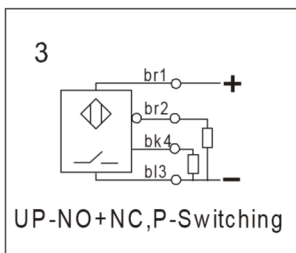
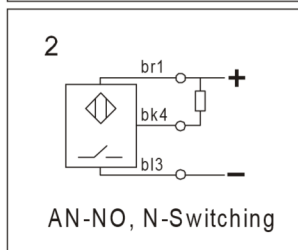
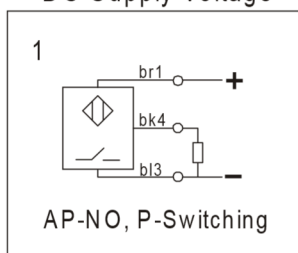
Short Circuit Protection: Switches with built in short circuit and overload protections are protected against damage to output stage. After elimination of the short circuit the switch resets automatically and is ready for operation.

Reverse polarity protection: The inductive proximity switches are protected against damage due to inverted supply line connection.

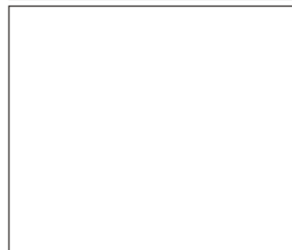
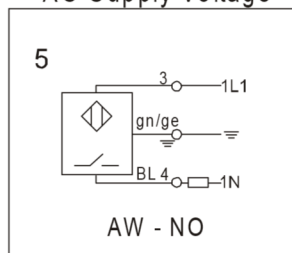
Transient voltage protection: The TEKNIC EUCHNER proximity switches are protected against damage caused by supply line transient voltages.

Connection-Diagrams

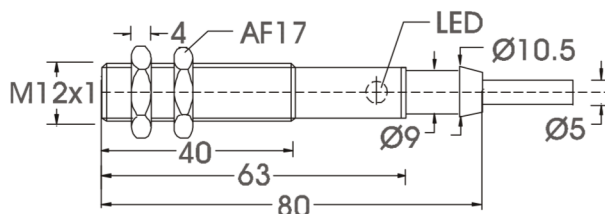
DC Supply Voltage



AC Supply Voltage



INDUCTIVE PROXIMITY SWITCHES TYPE EGT 12X02



TECHNICAL DATA

DC Operating Voltage	
Housing Material	Brass Nickel Plated
Environmental Protection	IP67
Mounting Position	Optional
Operating Temperature (deg.C)	-25 to + 70
Connection	Encapsulated oil resistant cable
Cable Length (mm)	2000 or 5000
Conductor Cross Section (mm)	0.34
Sensing Distance Sn (mm)	Flush Fitting = 2
Switch Point Hysteresis H (mm) ≤	0.2
Repeat Accuracy (mm) ≤	0.1
Operating Voltage (V)	10-30
Operating Voltage Ripple (%) ≤	10
Load Current Ia (mA) max.	250
Residual Current Ir (mA) ≤	0.001
No-Load Current (mA) ≤	15
Voltage Drop Ud(V) ≤	2.5
Internal Resistance Ri (Kohms)	4.7
Temperature Drift S (um/K) ≤	- 4
Switching Frequency (Hz)	1000
Output Function	A=NO, U=NO + NC
Output Polarity	P= Positive Switching N= Negative Switching
Status Indication	LED (see ordering code)

Ordering Code

Sensing Distance Sn	Output Polarity	Output Function	Short Circuit Protection	LED (optional)	Type	Connection Diagram
2	P	A	X	X	EGT 12X02AP024-	1
		U	-	X	EGT 12X02UP024-	3
	N	A	X	X	EGT 12X02AN024-	2
		U	-	X	EGT 12X02UN024-	4

Specify Cable Length required (2000 or 5000)

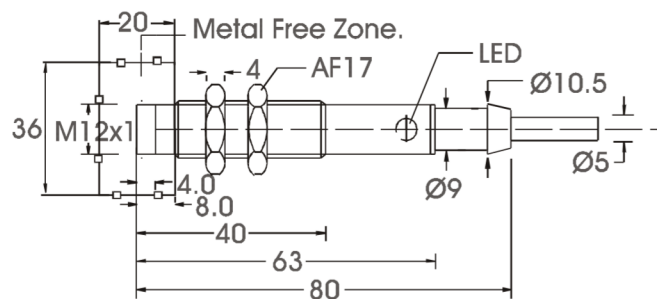
Specify Status indication LED (L) and either PVC or PUR Cables following Cable Length.

Ordering Example: EGT 12X02..Flush Fitting, 10-30 VDC, 2m Cable Length, with LED

EGT 12X02AP024 – 2000L

Or: EGT 12X02AP024 – 2000LP

Specify Status indication LED(L) and letter P if PU cable is required (only for 'NO' types).



TECHNICAL DATA

DC Operating Voltage	
Housing Material	Brass Nickel Plated
Environmental Protection	IP67
Mounting Position	Optional
Operating Temperature (deg.C)	-25 to + 70
Connection	Encapsulated oil resistant cable
Cable Length (mm)	2000 or 5000
Conductor Cross Section (mm)	0.34
Sensing Distance Sn (mm)	Non Flush Fitting = 4
Switch Point Hysteresis H (mm) ≤	0.6
Repeat Accuracy (mm) ≤	0.3
Operating Voltage (V)	10-30
Operating Voltage Ripple (%) ≤	10
Load Current Ia (mA) max.	250
Residual Current Ir (mA) ≤	0.001
No-Load Current (mA) ≤	15
Voltage Drop Ud(V) ≤	2.5
Internal Resistance Ri (Kohms)	4.7
Temperature Drift S (um/K) ≤	- 8
Switching Frequency (Hz)	1000
Output Function	A=NO, U=NO + NC
Output Polarity	P= Positive Switching N= Negative Switching
Status Indication	LED (see ordering code)

Ordering Code

Sensing Distance Sn	Output Polarity	Output Function	Short Circuit Protection	LED (optional)	Type	Connection Diagram
4	P	A	X	X	EGT 12X04AP024-	1
		U	-	X	EGT 12X04UP024-	3
	N	A	X	X	EGT 12X04AN024-	2
		U	-	X	EGT 12X04UN024-	4

Specify Cable Length required (2000 or 5000)

Specify Status indication LED (L) and either PVC or PUR Cables following Cable Length.

Ordering Example: EGT 12X04...Non Flush Fitting, 10-30 VDC, 2m Cable Length, with LED
EGT 12X04AP024 – 2000L
Or : EGT 12X04AP024 – 2000LP

Specify Status indication LED(L) and letter P if PU cable is required (only for 'NO' types).